

SOFR FUNDAMENTALS: WHAT WE KNOW SO-FAR

Posted on July 21, 2021

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The Secured Overnight Financing Rate (“**SOFR**”) is the preferred US dollar (“**USD**”) alternative risk-free rate (“**RFR**”) to the London Interbank Offered Rate (“**LIBOR**”). Since the Alternative Reference Rates Committee’s (the “**ARRC**”) initial selection of SOFR as the preferred alternative to USD LIBOR in 2017, much progress has been made in the transition from USD LIBOR to SOFR, and many credit facilities have adopted LIBOR fallback language that references SOFR. The ARRC has recommended that lenders stop originating USD LIBOR syndicated and bilateral loans with maturities after 2021 by June 30, 2021,^[1] and US regulatory agencies have published guidance encouraging supervised financial institutions to stop issuing new LIBOR loans by no later than December 31, 2021,^[2] or risk supervisory action if they are unable to demonstrate a readiness to stop issuing LIBOR loans by such time.^[3] Lenders and borrowers alike will therefore need to be familiar with RFRs, and in particular, SOFR. In this bulletin, we describe how SOFR is measured and its advantages over LIBOR, summarize the different SOFR variations, and discuss how SOFR is used in loan agreements.

1. What is SOFR?

SOFR measures the cost of borrowing cash overnight, which is collateralized by US Treasury securities in the repurchase agreement market.^[4] It is published each business day at around 8:00 a.m. Eastern Standard Time by the Federal Reserve Bank of New York (the “**New York Fed**”).^[5] It reflects approximately US\$1 trillion in daily transactions.^[6] In comparison, on any given day, there is only an estimated US\$500 million in transactional volume for the popular 3-month USD LIBOR.^[7] SOFR is considered a risk-free rate when compared to LIBOR because (i) it is based on an active market with a wide range of different lenders and borrowers, which also makes it difficult to manipulate; (ii) it was developed by the New York Fed for the public good; (iii) it is based on transactions, and not bank estimates; (iv) it is calculated in a transparent manner; (v) it complies with international best practices; (vi) it covers numerous market segments, resulting in large transaction volumes that arise from many different market conditions; (vii) the market underlying SOFR was able to withstand the global financial crisis; and (viii) it is not at risk of discontinuation due to a lack of a robust underlying market.^[8]

One of the criticisms of SOFR is that it is volatile and subject to fluctuation, particularly when market conditions are volatile. However, the ARRC points out that financial products generally will not use a single day’s reading of SOFR, rather they will rely on an average of daily rates, which decreases volatility.^[9] Another drawback of

SOFR is that it is only available in USD. Different RFRs are being developed for different LIBOR currencies, thereby posing challenges for multi-currency loan agreements. Nevertheless, progress is being made on this front. On May 6, 2021, the Loan Syndications and Trading Association (the “**LSTA**”) published an updated concept RFR loan agreement which shows how RFRs can be used for different currencies (USD, Euros, Yen, Sterling and Swiss Francs) in one loan agreement.^[10]

2. Types of SOFR

There are four different types of SOFR that may be used in loan agreements: (i) daily simple SOFR in arrears, (ii) SOFR compounded in arrears, (iii) SOFR compounded in advance, and (iv) forward looking term SOFR (“**Term SOFR**”). SOFR compounded in arrears will be used in the derivatives market.

The first three variations of SOFR referred to above differ in whether they apply simple interest (where interest is applied to the principal) or compounded interest (where interest is applied to the principal and to cumulated unpaid interest) and in whether they are determined in advance (before the start of the interest period) or in arrears (during the interest period). Each variation has its advantages and disadvantages. Simple interest conventions are currently easier to use, because most systems can accommodate them, however, compounded interest better reflects the time value of money.^[11] Nonetheless, the difference between using simple and compounded interest is small in practice, especially at lower rates and over short time periods.^[12]

Similarly, there are advantages and disadvantages to the point in time when interest is calculated. While interest paid in arrears reflects what actually occurs over the interest period, it does not provide loan parties with much notice of the amount of interest due.^[13] Methodologies have been developed to address this lack of notice, such as the lookback period discussed later in this bulletin. In advance interest rates can quickly become “out of date”, at least from the perspective of lenders.^[14] The differences between using interest paid in advance versus in arrears will generally even out over the term of the loan, especially in loan agreements with longer maturity dates.^[15] However, between interest periods, or between different years, there may be material differences between the two rates.^[16]

These three variations of SOFR can be summarized as follows:

- **Daily simple SOFR in arrears** is calculated using simple interest over the current interest period.^[17] Therefore, it is not known in advance of the payment date. Loan market participants have noted their preference to apply SOFR on a daily basis throughout the interest period.^[18]
- **SOFR compounded in arrears** is calculated by compounding interest over the current interest period.^[19] Therefore, it is not known in advance of the payment date.
- **SOFR compounded in advance** is calculated by compounding interest over a previous set amount of days (i.e. tenors of 30, 90 or 180 days).^[20] Therefore, it is known before the start of the interest period. It

can be calculated using the compounded average of SOFR that is published on each business day by the New York Fed.^[21]

The last variation of SOFR is **Term SOFR**. Term SOFR is calculated differently than the other types of SOFR discussed above. It is not possible to calculate Term SOFR from the term treasury repo market.^[22] Rather, Term SOFR will be produced from the SOFR derivatives markets, once such markets have enough liquidity.^[23] Term SOFR will look most like LIBOR, since it will have a term curve, and will likely be quoted for 1-month and 3-month tenors.^[24] Term SOFR will also be known in advance of the start of the interest period, and will be easiest to operationalize because it functions like LIBOR.^[25]

Term SOFR is considered by many market participants to be the preferred SOFR variant for loans, however, an ARRC-recommended Term SOFR has not yet been developed. On May 6, 2021, the ARRC published the market indicators that must be met for it to recommend Term SOFR.^[26] These include continued growth in overnight SOFR-linked derivatives volumes, progress in increasing SOFR derivatives liquidity, and growth in offerings of cash products linked to SOFR averages.^[27] The indicators are intended to measure progress towards the establishment of robust underlying SOFR derivatives and cash markets,^[28] and build on the ARRC's April 20, 2021 release of key principles for Term SOFR.^[29]

Although the ARRC issued a statement in March 2021 that it will not be able to recommend Term SOFR by mid-2021 as originally planned, and that it encourages market participants to use the SOFR rates that are currently available,^[30] it now appears that an ARRC-recommended Term SOFR is expected this summer, and perhaps as early as late July.^[31] In a June 8, 2021 statement, the ARRC praised the recommendations of the Interest Rate Benchmark Reform Subcommittee of the Commodity Futures Trading Commission's Market Risk Advisory Committee, which will aid in replacing USD LIBOR with SOFR for USD linear interest rate swaps, cross-currency swaps, non-linear derivatives and exchange traded derivatives.^[32] The ARRC stated that once the recommended convention switch from USD LIBOR to SOFR for USD linear interest rate swaps is in effect, which is anticipated will occur on July 26, 2021, the market indicators needed for it to recommend Term SOFR will be met, given the increased liquidity in the SOFR market, and therefore, that it will be in a position to formally recommend the CME Group's Term SOFR, which is discussed below.^[33]

In support of LIBOR transition efforts, private organizations are working on constructing Term SOFR. On April 21, 2021, the CME Group, which is a leading derivatives market operator, announced that it had developed Term SOFR reference rates ("**CME Term SOFR**") calculated using overnight SOFR rates together with market expectations implied from derivatives markets.^[34] It is available for tenors of one, three and six-months.^[35] CME Term SOFR has not (yet) been recommended by the ARRC, but according to CME, it aligns with the ARRC's principles for Term SOFR, as well as the IOSCO Principles for Financial Benchmarks.^[36] One of the

ARRC's principles for Term SOFR is that it should be limited in use, so that it does not impact the volume of the underlying SOFR-linked derivatives transactions. CME Term SOFR therefore will initially only be available for cash market transactions (which include loans) until June 30, 2023, and licensing of the rates will be free during such time period.^[37]

The ARRC has noted that it continues to evaluate the limited instances in which Term SOFR could be used.^[38] Standard derivatives contracts will not reference Term SOFR (either as a fallback or for new issuances) and so borrowers who also enter into derivatives contracts may prefer to use daily simple SOFR or SOFR compounded in arrears to better align with the fallback rate in the International Swaps and Derivatives Association's ("ISDA") documentation.^[39]

3. Conventions for SOFR

The ARRC has released conventions for using daily simple SOFR in arrears and SOFR compounded in arrears in syndicated loans.^[40] The other SOFR variants, SOFR compounded in advance and Term SOFR (both of which are determined in advance and are fixed during the interest period) will have similar conventions to LIBOR.^[41]

In its recommended conventions, the ARRC reiterates that while compounded interest is a better reflection of the time value of money, simple interest is more straightforward and the difference between simple and compounded SOFR in arrears is just a few basis points or less.^[42] To address the fact that these two SOFR rates are not known until the end of the interest period, resulting in little to no notice of the amount of interest due, the ARRC recommends a lookback period with no observation shift, with the lookback period allowing the administrative agent to determine the rate of interest before the applicable interest period ends and interest is due.^[43] The lookback period is generally 1 to 5 days long. For example, if a loan starts on June 1, a five-day lookback period would lookback to May 25 for the interest rate for June 1, May 26 for the interest rate for June 2, and so on, eventually resulting in five days notice of the amount of interest due at the end of the 30-day interest period.^[44]

Among other conventions, the ARRC recommends (i) that interest be calculated on the preceding business day's rate on a holiday or weekend; (ii) a business day convention so that payments falling on a non-business day will be adjusted to the next business day, unless they fall in the next calendar month, in which case the payment date will be the prior business day; and (iii) that loan agreements may include provisions regarding compensation for lender funding losses, although typical "breakage" language may not be applicable to these two SOFR rates since SOFR, unlike LIBOR, does not reflect a lender's cost of lending.^[45]

4. Using SOFR in Loan Agreements

The ARRC's recommended hardwired fallback language for bilateral and syndicated loan agreements includes

a “Benchmark Replacement” waterfall to be used if LIBOR is discontinued or deemed unrepresentative. Step 1 of the waterfall results in the use of Term SOFR, and step 2 of the waterfall results in the use of daily simple SOFR in arrears.^[46] The ARRC advises that parties may eliminate step 1, or they may replace step 2 with SOFR compounded in arrears or SOFR compounded in advance.^[47] That being said, the ARRC notes that daily simple SOFR in arrears is already operationalized, reduces operational risk when compared with compounded SOFR in arrears and poses fewer challenges for syndicated loans, which are heavily traded and often require intra-period payments.^[48]

In each case, the rate would include a spread adjustment to align SOFR with LIBOR. The exact spread adjustments for Term SOFR, as recently locked-in by ISDA, are included in the definition of Benchmark Replacement. The spread adjustment for daily simple SOFR in arrears is defined as the spread adjustment selected or recommended by the relevant authority. This is because it is anticipated that a set interest payment frequency (for example, monthly or quarterly) would be established for daily simple SOFR in arrears, and that the spread adjustment would be equal to the relevant ISDA spread adjustment tenor of USD LIBOR that has around the same length as the SOFR interest payment frequency.^[49]

The LSTA is focusing its efforts on advising market participants about the existing SOFR variants, rather than waiting for Term SOFR. In the fall of 2020, the LSTA posted its concept loan agreement, which documents a term loan referencing daily simple SOFR in arrears and, in the alternative, SOFR compounded in arrears.^[50] An updated version of this loan agreement was released on May 5, 2021, which, among other things, includes an automatic transition (which may be changed to an opt-in option) to Term SOFR if the ARRC were to recommend one in the future.^[51]

The Loan Market Association is keeping track of RFR-linked loans in the market.^[52] Such loans have increased in frequency since last year, which is a positive sign in the context of the cessation of LIBOR.

5. Conclusion

Much progress has been made in advancing SOFR as the preferred alternative RFR for USD LIBOR. As the end of LIBOR approaches, market participants need to become familiar with SOFR, its mechanics, and the differences between SOFR and LIBOR. With the year-end timeline for stopping new originations of LIBOR loans fast approaching, now is the time to take a close look at SOFR and how it will work in the context of specific loan agreements.

We will continue to monitor progress with respect to the cessation of LIBOR and will provide updates as notable milestones occur.

[1] [ps2id id='1' target='']Alternative Reference Rates Committee, “[ARRC Recommended Best Practices for](#)

[Completing the Transition from LIBOR](#)" (3 September 2020).

[2] [ps2id id='2' target='']See Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation and Office of the Comptroller of the Currency, "[Statement on LIBOR Transition](#)" (30 November 2020).

[3] [ps2id id='3' target='']See Board of Governors of the Federal Reserve System, "[SR 21-7: Assessing Supervised Institutions' Plans to Transition Away from the Use of the LIBOR](#)" (9 March 2021).

[4] [ps2id id='4' target='']Alternative Reference Rates Committee, "[SOFR Starter Kit Part II – How SOFR Works](#)" (7 August 2020) [Starter Kit Part II].

[5] [ps2id id='5' target='']See the Federal Reserve Bank of New York, "[Secured Overnight Financing Rate Data](#)".

[6] [ps2id id='6' target='']*Supra*, note [4](#).

[7] [ps2id id='7' target='']*Supra*, note [4](#).

[8] [ps2id id='8' target='']Alternative Reference Rates Committee, "[SOFR Starter Kit Part I – Background on US Dollar LIBOR](#)" (7 August 2020), online: [Starter Kit Part I]; *supra*, note [4](#), Starter Kit Part II; Alternative Reference Rates Committee, "[A User's Guide to SOFR](#)" (April 2019)", at 2.

[9] [ps2id id='9' target='']*Ibid*, SOFR Guide, at 3.

[10] [ps2id id='10' target='']The Loans Syndication and Trading Association, "[IBOR/RFR Multicurrency Concept Documents](#)" (5 May 2021).

[11] [ps2id id='11' target='']*Supra*, note [8](#), SOFR Guide, at 1.

[12] [ps2id id='12' target='']*Ibid*. at 5.

[13] [ps2id id='13' target='']*Ibid*. at 7.

[14] [ps2id id='14' target='']*Ibid*. at 7.

[15] [ps2id id='15' target='']*Ibid*. at 8.

[16] [ps2id id='16' target='']*Ibid*.

[17] [ps2id id='17' target='']The Loans Syndication and Trading Association, "[The Great Migration Away From LIBOR](#)" (October 2019), at 5.

[18] [ps2id id='18' target='']Alternative Reference Rates Committee, "[ARRC Supplemental Recommendations of Hardwired Fallback Language for LIBOR Syndicated and Bilateral Business Loans](#)" (25 March 2021), at 18.

[19] [ps2id id='19' target='']*Supra*, note [17](#), at 5.

[20] [ps2id id='50' target='']*Ibid*.

[21] [ps2id id='21' target='']*Supra*, note [18](#), at 20.

[22] [ps2id id='22' target='']*Supra*, note [8](#), SOFR Guide, at 15.

[23] [ps2id id='23' target='']*Ibid*.

[24] [ps2id id='24' target='']*Supra*, note [17](#).

[25] [ps2id id='25' target='']*Ibid*.

- [26] [ps2id id='26' target='']Alternative Reference Rates Committee, "[ARRC Identifies Market Indicators to Support a Recommendation for a Forward-Looking SOFR Term Rate](#)" (6 May 2021).
- [27] [ps2id id='27' target='']*Ibid.*
- [28] [ps2id id='28' target='']*Ibid.*
- [29] [ps2id id='29' target='']See Alternative Reference Rates Committee, "[Key Principles to Guide the ARRC as it Considers the Conditions it Believes are Necessary to Recommend a Forward-Looking SOFR Term Rate](#)" (20 April 2021).
- [30] [ps2id id='30' target='']Alternative Reference Rates Committee, "[ARRC Provides Update on Forward-Looking SOFR Term Rate](#)" (23 March 2021).
- [31] [ps2id id='31' target='']The Loans Syndication and Trading Association, "[\(Term\) SOFR First?](#)" (15 June 2021).
- [32] [ps2id id='32' target='']Alternative Reference Rates Committee, "[ARRC Welcomes MRAC Subcommittee's Recommended Dates for Transitioning Interdealer Swap Market Trading Conventions to SOFR](#)" (9 June 2021), [ARRC Welcomes MRAC]. See also Commodity Futures Trading Commission, "[CFTC's Interest Rate Benchmark Reform Subcommittee Recommends July 26 for Transitioning Interdealer Swap Market Trading Conventions from LIBOR to SOFR](#)" (8 June 2021), and Commodity Futures Trading Commission, "[CFTC Market Risk Advisory Committee Adopts SOFR First Recommendation at Public Meeting](#)" (13 July 2021).
- [33] [ps2id id='33' target='']*Ibid.*, ARRC Welcomes MRAC.
- [34] [ps2id id='34' target='']CME Group, "[CME Term SOFR Reference Rates](#)" (Accessed 13 May 2021); CME Group, "[CME Group Announces Launch of CME Term SOFR Reference Rates](#)"; CME Group, "[CME Term SOFR Reference Rates Benchmark Methodology](#)" (21 April 2021).
- [35] [ps2id id='35' target='']*Ibid.*
- [36] [ps2id id='36' target='']*Ibid.*
- [37] [ps2id id='37' target='']*Ibid.*
- [38] [ps2id id='38' target='']*Supra*, note [30](#).
- [39] [ps2id id='39' target='']*Supra*, note [18](#), at 17.
- [40] [ps2id id='40' target='']Alternative Reference Rates Committee, "[ARRC Releases Conventions Related to Using SOFR in Arrears for Syndicated Loans](#)" (22 July 2020).
- [41] [ps2id id='41' target='']*Ibid.*
- [42] [ps2id id='42' target='']Alternative Reference Rates Committee, "[SOFR "In Arrears" Conventions for Syndicated Business Loans](#)" (22 July 2020), at 2.
- [43] [ps2id id='43' target='']*Ibid.*
- [44] [ps2id id='44' target='']*Ibid.*
- [45] [ps2id id='45' target='']*Ibid.* at 3-4.
- [46] [ps2id id='46' target='']*Supra*, note [18](#), at 19.

[47] [ps2id id='47' target='']*Ibid.* at 16.

[48] [ps2id id='48' target='']*Ibid.* at 20.

[49] [ps2id id='49' target='']*Ibid.* at 19.

[50] [ps2id id='50' target='']The Loan Syndications and Trading Association, “[Going Daily! Final Draft of Simple SOFR Concept Document Released](#)” (13 July 2020).

[51] [ps2id id='51' target='']The Loan Syndications and Trading Association, “[LSTA’s SOFR Concept Credit Agreement – Daily Simple SOFR/Daily Compounded SOFR](#)” (5 May 2021).

[52] [ps2id id='52' target='']The Loan Market Association, “[List of RFR Referencing Syndicated and Bilateral Loans](#)” (June 2021).

by [Kathy A. Martin](#) and [Maria Sagan](#)

A Cautionary Note

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